

REMARKS

As a preliminary, Applicant and Applicant's representative thank the Examiner for the interview of January 7, 2010.

By the present amendment, claim 1 has been amended to be presented with separate paragraphs for legibility, and to specify that

- each ply is formed of a fibrous mat,
- the interlayer is located at a junction of the two plies,
- the element of the interlayer is at least one of (i) a soluble element or an emulsifiable element, and (ii) an element in the form of particles,
- a portion of each of the two plies and said element are intimately joined together in the interlayer, wherein (i) constituents of each of the two plies are interpenetrating with each other in the interlayer, and (ii) constituents of each of the two plies and constituents of the interlayer including said element are interpenetrating with one another in the interlayer.

Claim 14 has been amended accordingly.

Support for the added recitations is found in the original application, for example, at least on page 5, lines 1-31 and page 7, lines 19-37.

Further, claim 2 has been amended to replace "layer placed" by "interlayer formed" for antecedent basis.

Claim 3 has been amended to recite that the interlayer covers the entire surface area of the two plies.

Claim 11 has been amended to replace “certain stimulations giving a specific signal that can be detected using a suitable device” by the recitation “is chosen from substances that react to electromagnetic fields” from claim 12, and claim 12 has been amended accordingly.

New claims 20-23 have been added to recite the element being a binder in latex form and a latex of a polyurethane or styrene/butadiene copolymer binder, respectively.

Support for the added recitations is found in the original application, in particular on page 6, lines 17-21.

Claims 1-23 are pending in the present application. Claims 1 and 14 are the only independent claims. However, method claims 14-19 are withdrawn from consideration following a restriction requirement. Thus, only product claims 1-13 are currently under examination.

I. Restriction Requirement

In the Office Action, the restriction requirement between claims 1-13 and claims 14-19 is maintained and made final. It is alleged that Welch (US 3,256,138) discloses a paper as in claim 1. More specifically, it is alleged that the “discrete resin particles” of the present invention are “diffuse,” and “diffuse” means “dissolved or emulsified,” and Welch provides particles that are “intimately joined” to the paper plies (see Office Action at page 2).

The restriction requirement is respectfully traversed. Contrary to the interpretation in the Office Action, the features of the present claims are not taught or suggested in Welch.

Welch discloses a paper relatively similar to the paper of Williams, which is cited in the Office Action with respect to the anticipation rejection (see Part IV below).

In particular, the paper of Welch is similar to the paper of Williams in that the plastic web 87 interpenetrates with each of the paper plies 88 (see, e.g., Fig. 5a and col. 11, lines 1-3), but the fibers of the two plies of Welch do not interpenetrate with each other because the added product is a resin and because resins do not evaporate, contrary to water, for example (solution, emulsion, etc.). As a result, a unitary fibrous mat is not formed in the area where the plastic web of Welch is distributed.

Please refer to the discussion of Williams below in Part V.

In view of the above, it is respectfully submitted that the restriction requirement should be withdrawn and the withdrawn claims should be rejoined and examined together with the other claims in this application.

II. Objection to claim 1

In the Office Action, claim 1 is objected to in that the term “diffuse form” is in quotation marks.

The quotation marks have been removed and the diffuse form has been clarified as being a soluble element or an emulsifiable element. Accordingly, it is submitted that the objection should be withdrawn.

III. Indefiniteness rejection

In the Office Action, claims 2-3 and 11-12 are rejected under 35 U.S.C. 112, second paragraph, as indefinite. It is alleged in the Office Action that the expression “said layer” in claims 2-3 is unclear, and that the expression “certain stimulations giving a specific signal that

can be detected using a suitable device” lacks clarity as to the “definitive details for those limitations” (Office Action at page 4).

Reconsideration and withdrawal of the rejection is respectfully requested. In claims 2 and 3, “layer” has been replaced by “interlayer.” In claim 11, the recitation “certain stimulations giving a specific signal that can be detected using a suitable device” has been replaced by the recitation “is chosen from substances that react to electromagnetic fields” from claim 12, and claim 12 has been amended accordingly.

In view of the above, it is submitted that the rejection should be withdrawn.

IV. Anticipation rejection

In the Office Action, claims 1-13 are rejected under 35 U.S.C. 102(b) as anticipated by US 3,880,706 to Williams (“Williams”).

Reconsideration and withdrawal of the rejection is respectfully requested.

As discussed at the interview, Williams discloses a paper in which a thermoplastic web or thermoplastic particles are inserted between two plies of paper, then partially or completely melted to interpenetrate with the paper plies.

However, as shown in Fig. 8 of Williams, in the areas where the thermoplastic material is present, the thermoplastic material and fibers of the two plies are not intimately joined. On the contrary, as is visible on Fig. 8 of Williams, the thermoplastic material forms “islands of thermoplastic material” (Williams claim 1), in the area of which “islands” the fibers of the two plies are completely separated by the thermoplastic material.

Specifically, in the embodiments according to which Williams incorporates the plastic before drying (see Williams col. 5, line 26-27 and Fig. 5), but melts the plastic after drying the paper plies (see Williams examples 1 and 6), the already dried paper fibers of the two plies will not inter-penstrate in the area of the melted plastic, but the presence of melted plastic “island” will separate the fibrous mats in the area where the “island” is located.

In contrast, in the presently claimed invention, a portion of each of the two plies and said element are intimately joined together in the interlayer, wherein (i) constituents of each of the two plies are interpenetrating with each other in the interlayer, and (ii) constituents of each of the two plies and constituents of the interlayer including said element are interpenetrating with one another in the interlayer, as recited in present claim 1.

An advantage of this feature is that the element in the interlayer penetrates, in particular during the drying step, into the fibrous mat of each of the two plies. As a consequence and since the reinforcing element is distributed in the thickness of the paper, the reinforcement of the paper is more uniform thus better (without weak point). Another advantage is that, since the fibrous mats of the two plies interpenetrate each other to form a unitary fibrous mat, even in the areas comprising the element (reinforcing / thermoplastic), the strength and resistance of the paper is considerably improved.

This feature of the presently claimed invention and its advantages are not taught or suggested in Williams. Therefore, the present claims are not anticipated by, and not obvious over, Williams.

In addition, with respect to the dependent claims, it is submitted that the combined features of each of these respective claims is not taught or suggested in Williams.

In particular, with respect to claims 20-23, Williams is completely silent regarding using a binder in latex form, let alone a polyurethane or styrene/butadiene copolymer binder, intimately joined with constituents of the fibrous mats to form a unitary fibrous mat.

Therefore, each of the dependent claims, and in particular, each of claims 20-23, is not anticipated by, and not obvious over, Williams.

In view of the above, it is submitted that the rejection should be withdrawn.

Conclusion

In conclusion, the invention as presently claimed is patentable. It is believed that the claims are in allowable condition and a notice to that effect is earnestly requested.

If there is, in the Examiner's opinion, any outstanding issue and such issue may be resolved by means of a telephone interview, the Examiner is respectfully requested to contact the undersigned attorney at the telephone number listed below.

Application No. **10/584,763**
Art Unit: **1794**

Amendment under 37 CFR §1.111
Attorney Docket No.: **062723**

If this paper is not considered to be timely filed, the Applicants hereby petition for an appropriate extension of the response period. Please charge the fee for such extension and any other fees which may be required to Deposit Account No. 50-2866.

Respectfully submitted,
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